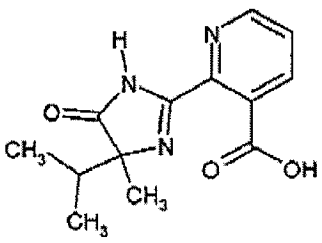
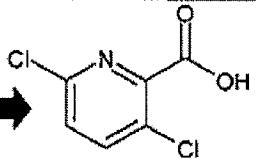
REMARKS:

In the Office Action dated April 16, 2009, claims 1, 25, 26 and 30-37, in the above-identified U.S. patent application were rejected. Reconsideration of the rejections is respectfully requested in view of the following remarks. Claims 1, 25, 26 and 30-37 remain in this application and claims 2-24, and 27-29 have been canceled. Claim 30 has been amended to insert the word "The" at the beginning of the claim.

Claims 1, 25, 26 and 30-35 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 8, 9, 23 and 26-32 of application no. 10/522,157. Component A is the same in both of the applications and component C is the same when C is a triazine. However, component B is different in the two applications. Component B in the present application is clopyralid while component B in 10/522,157 is two herbicides selected from the group consisting of imazapyr, imazaquin, imazamethabenz-methyl, imazamox, imazapic and imazethapyr. One skilled in the art would never expect to sustain a synergistic effect when exchanging essential components in a synergistic mixture. The office action points out that 10/522,157 suggests clopyralid on page 5. Applicants respectfully point out that 10/522,157 suggests clopyralid as component C so that clopyralid would replace the triazine in 10/522,157 not component B. Thus, the disclosure pointed out in the office action does not suggest a combination of 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, clopyralid and either sulfonamide or a triazine as in the present claims. The present specification discloses at least one herbicide selected from the group consisting of imazapyr, imazaquin, imazamethabenz-methyl, imazamox, imazapic and imazethapyr as component C. Since component A is the same in both applications and

component C is the same when C is triazine, the components B should be compared between the two applications.

	US10/522,157	US10/522,097 (present application)
A +	4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl- benzoyl]-1-methyl-5-hydroxy-1H-pyrazole	4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl- benzoyl]-1-methyl-5-hydroxy-1H-pyrazole
B +	 **at least two imis, e.g. imazapyr**	 **clopyralid**
C	triazine (*atrazine*)	triazine (*atrazine*) or sulfonamide (*flumetsulam*)

Applicants point out that components B in the respective mixtures not only differ substantially with respect to their chemical structure, but also in their mode of action. Clopyralid belongs to the growth-regulator type herbicides like 2,4-D, dicamba, picloram, etc. These compounds mimic plant growth stimulant substances (hormones) called auxins. Clopyralid enters treated vegetation through the leaves and roots, and replaces natural auxins at binding sites, causing abnormal growth patterns and disrupting the growth processes of the plant. The chemical accumulates in the growing points of the plant, leading to rapid growth, and eventually plant death. Broadleaf plants treated with clopyralid exhibit stem twisting and leaf malformations (cupping, crinkling, parallel veins, leaf strapping). Corn plants exhibit rolled leaves (onion leafing), fused brace roots, stalk bending (goosenecking) and brittleness, and missing kernels. Small grains exhibit twisted flag leaves, sterile florets, or multiple florets, twisted awns and head malformation.

In contrast to clopyralid, imidazolinone compounds act by inhibiting branched chain amino acid (valine, isoleucine, leucine) biosynthesis. Specifically, they inhibit the catalytic action of acetolactate synthase (ALSase), also known as acetohydroxyacid synthase and cause different symptoms in the treated plants. Grass plants may be stunted with interveinal yellowing (chlorosis) or purpling. Corn plants may be stunted and show root pruning or stunting, Leaves emerging from the whorl may be yellow to translucent in appearance. Broadleaf plants may be stunted and chlorotic or purple. Leaves may be yellow in appearance and leaf veination may appear red or purple in color.

In contrast to the unfounded allegations in the office action it is obvious that these two components will not perform analogously in mixtures and that a synergistic effect observed in one mixture cannot reasonably be expected to occur in the other mixture simply because they are both herbicides. Synergistic effects cannot be predicted from the herbicidal activity of the individual components.

Applicants also point out that in making a double patenting rejection the *claims* in the present application must be compared to the *claims* currently in the '157 application. *See Ex parte Whalen*, Appeal No. 2007-4423 (BPAI July 23, 2008) (precedential opinion) (holding that the analyses for obviousness under 35 USC §103 and obviousness–type double patenting are not identical in that § 103 obviousness compares claimed subject matter to the prior art, while nonstatutory double patenting compares claims in an earlier patent to claims in a later patent or application). *Accord Geneva Pharm. Inc. v. GlaxoSmith Kline PLC*, 349 F.3d 1373, 1385, 68 USPQ2d 1865, 1875 (Fed. Cir. 2003) (stating "because nonstatutory

double patenting compares earlier and later claims, an earlier patent's disclosure is not available to show nonstatutory double patenting."); *General Foods Corp. v. Studiengesellschaft Kohle mbH*, 972 F.2d 1272, 1275, 23 USPQ2d 1839, 1840 (Fed. Cir. 1992) (stating that "the law of double patenting is concerned *only* with what patents *claim*" and that double patenting "involves an inquiry into what, if anything, has been claimed twice"); *In re Vogel*, 422 F.2d 438, 441,164 USPQ 619, 622 (CCPA 1970) (indicating that when considering obviousness-type double patenting, "the patent disclosure may not be used as prior art"); *In re Aldrich*, 398 F.2d 855, 859, 158 USPQ 311, 314 (CCPA 1968) (indicating that double patenting rejections cannot be based on the disclosures of patents whose claims are relied on to demonstrate double patenting). Applicants contend that the present claims would not have been obvious over the claims currently pending in the '157 application in view of the different components recited in the claims and the unpredictability of synergistic effects. In view of the above discussion, applicants request that this rejection be withdrawn.

Claims 1, 25, 26 and 30-37 were rejected under 35 USC §103(a) as unpatentable over Sievernich (CA 2,334,955). Applicants respectfully point out that some of the components C recited on page 7 of the office action were deleted from the claims in the previous response. Sievernich discloses synergistic binary mixtures, comprising as component A) 4-[2- methy1-3-(4,5-dihydroisoxazol-3-yl)4-methylsulfonyl-benzoyl)-1-methyl-5-hydroxy-1H-pyrazole and as component B) a herbicide selected from a long list of individual active ingredients, including clopyralid. As a specific embodiment, Sievernich describes synergistic mixtures, comprising as component A)

4[2-methy1-3-(4,5-dihydroisoxazol-3-y1)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole and as component B) two herbicidal compounds from groups B1 to B16 (page 34, lines 43 ff., and claim 25). Dependent claim 25 according to Sievernich describes a particular embodiment of the general inventive idea of synergistic binary mixtures comprising 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl-1-methyl-5-hydroxy-1H-pyrazole as component A). Thus, the third component of the mixture as claimed in claim 25 does not need to support the inventive step. A further synergistic effect produced by the third component is neither disclosed nor suggested by Sievernich.

	CA 2,334,955	**US10/522,097 (present application)**
A +	4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methyl-sulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole	4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methyl-sulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole
B +	***a herbicide B selected from groups B1 to B16***	***clopyralid***
C	**OPTIONALLY**: a herbicidal compound from amongst the groups **B12** and **B14** (page 35, lines 4 to 8, claim 26;	**MANDATORY:** a sulfonamide (flumetsulam) or a triazine (*atrazine*)

In further embodiments, Sievernich discloses synergistic mixtures comprising as component A) 4(2-methy1-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl- benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as synergistic component B) a herbicidal compound from groups B1 to B16 and as third component (let's call it C to allow for easier comparison with the present application) a herbicidal compound from amongst the groups B12 and B14. Experimental support is given in tables 76 (nicosulfuron (B2) and dicamba (B14)), tables 77 and 78 (diflufenzopyr (B5) and dicamba (B14)), table 79 (dimethenamide (B9) and atrazine (B12)), table 80 (bentazone (B12) and atrazine (B12)), tables 81 and 82 (atrazine (B12) and dicamba (B14)). Again, the third component is not required to further contribute to the synergistic effect of the binary

mixture. The ternary mixtures described by Sievernich are particular embodiments of the synergistic mixtures, which represent the underlying inventive concept (i.e. synergistic effect produced by the two main components). Consequently, there are several significant differences between Sievernich and the present invention:

- Sievernich only generically discloses binary mixtures comprising 4-[2-methy1-3-(4,5- dihydroisoxazol-3-yl)-4-methylsulfonyl- benzoyl]-1-methyl-5-hydroxy-1H-pyrazole and clopyralid. 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl- benzoyl]-1-methy1-5-hydroxy-1H-pyrazole is covered by its generic formula (see page 41 lines 1 to 17, preferred embodiments of group B4, inter alia clopyralid) and clopyralid is mentioned in a long list of coequal active ingredients (original claims 1, 14).
- The only examples disclosed by Sievernich proving a synergistic effect of a binary mixture comprising a 3-heterocyclyl-substituted benzoyl-derivative and a herbicide selected from group B4 employ 4-[2-**chloro**-3-(4,5-dihydroisoxazol-3-y1)-4-methylsulfonyl- benzoyl]-1-methyl-S-hydroxy-1H-pyrazole and 2,4-D (tables 24 to 26), different compounds than components A) and B) of the present invention.
- Not a single ternary mixture disclosed by Sievernich (tables 76 ff.) comprises clopyralid.
- Sievernich does not describe or suggest a second synergistic effect which boosts the already present synergistic effect between the two main active ingredients.

The subject matter of the present invention is a selection invention from Sievernich. While Sievernich teaches binary mixtures comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4- methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole and as component B) a herbicide selected from a long list of individual active ingredients, including clopyralid, the mixtures according to the present invention comprise three strictly defined components. The inventive step of the Sievernich application is based on the unexpected synergistic effect of the binary mixture comprising as component A) 4-[2- methy1-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl- benzoyl]-1-methyl-5-hydroxy-1H-pyrazole). The office action argues that adding a third herbicide to a synergistic mixture would be obvious to the man skilled in the art with the expectation of obtaining a synergistic mixture with enhanced effectiveness. This may or may not be the case, depending on the selected compounds. Even a purely additive effect does not always occur just because it can be calculated. Furthermore, the office action overlooks the fact that the addition of the third component, the sulfonamide or the triazine, provides not only enhanced effectiveness, i.e. an additive effect, but provides a second, additional synergistic effect which has been confirmed by experimental evidence and would not have been predictable or -obvious over Sievernich.

The fact that the effectiveness of an already highly active herbicidal mixture can yet again be boosted in a more than additive manner is totally unexpected. It must be noted that the higher the level of control of unwanted vegetation already

achieved, the more difficult it is to produce further improvement by addition of a further active ingredient, much less a further synergistic effect.

Attached to this response is the data from the present application re-organized according to plant species, concentration of active ingredients, and components C). A reference to the respective tables in the specification is provided. The synergistic effect of the third component on top of the binary mixture's activity can unequivocally be observed. This overview clearly confirms the inventive concept that the addition of a sulfonamide or a triazine (third component) to a mixture comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3- yl)-4-methylsuffonyl- benzoyl]-1-methyl-5-hydroxy-1H-pyrazole and as component B) clopyralid results in a synergistic effect, which is independent from the synergistic effect that is achieved from combining component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl- benzoyl]-1-methyl-5-hydroxy-1 H pyrazole and as component B) clopyralid (as described in generic terms by Sievernich).

Applicants respectfully point out that the subject matter of the present invention is a strictly defined ternary mixture, which differs in the above listed elements from Sievernich. There is no indication in Sievernich how to select the components of the presently claimed inventive mixture in order to produce a second synergistic effect. Synergistic effects cannot be predicted. Consequently, a second more than additive, i.e. synergistic increase in herbicidal activity is even less likely to be predictable. Synergy was demonstrated for a fair number of representative embodiments in the present application and further detailed explanations are provided above. Therefore, if this rejection is to be maintained, applicants request

evidence that the synergistic effect resulting from the addition of a third component as in the present application would have been predictable from the prior art. In the absence of such evidence, applications contend that this rejection should be withdrawn.

Applicants respectfully submit that all of claims 1, 25, 26 and 30-37 are now in condition for allowance. If it is believed that the application is not in condition for allowance, it is respectfully requested that the undersigned attorney be contacted at the telephone number below.

In the event this paper is not considered to be timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fee for such an extension together with any additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account No. 02-2135.

Respectfully submitted,

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